

Task Prompt: For this informational essay, you will compare and contrast two perspectives on a critical issue to gain a complete understanding of the topic.

After deciding on a topic, you will clarify the two contrasting perspectives (also known as stances). After recording all your prior knowledge, you'll develop research questions to guide your research and writing. Next, you'll determine what else you need to know to answer your question and set to work researching. Through research, you will develop a central idea about this issue, which will help you select and organize the most relevant details, quotations, examples, and other information about your topic in your first draft. You will then analyze your information to explain the similarities and differences in the two perspectives on your topic. In your concluding paragraph, be sure to summarize your findings and tell the reader why this is important information to have and how this issue might change over time.

## Not Just On Printing Paper

### Introduction

Bioprinting is where you print out a 3D object, body parts or organs. Along with this amazing technology are some positives which are helpful for the future of bioprinting. On the other hand, there are some negatives stopping its growth. In the past couple years, bioprinting has gained popularity with patients needing limbs or organs. There are many new possibilities for the future that will make it easier to have transplants in the future, but there are some deterrents.

### Pros and Cons

Conversely, bioprinting can be beneficial to our health in the future. "Developing bioprinters that could print skin cells directly onto wounds and burn injuries" (Barnett) Being able to print into wounds could revolutionize bioprinting with new ways to help fix wounds and burns. Bioprinting on wounds and burns is important because it is easier and more efficient than current procedures of using a skin graft surgery. Bioprinting has become a more efficient option for wounds and burns. "Some 18 people die in the United States each day waiting in vain for transplants because of a shortage of donated organs" (Griggs). Bioprinting is important in this

Amy 6/13/2015 5:49 PM

**Comment [1]:** The title cleverly introduces the reader to the topic.

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**Comment [2]:** Student defines important vocabulary that will be used throughout the essay.

Amy 7/11/2015 7:20 PM

**Comment [3]:** The writer clearly outlines the pros of bioprinting.

Amy 6/13/2015 5:50 PM

**Comment [4]:** Transition identifies that an opposing idea is coming up.

Amy 6/14/2015 10:56 AM

**Comment [5]:** Side 2: The negatives of bioprinting.

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**Comment [6]:** Introduces current day relevance.

Amy 7/11/2015 7:22 PM

**Comment [7]:** Central Idea is presented which mentions two possible sides, but it could be stronger if a deterrent was also named like the new possibility of easier transplants was named.

Amy 6/13/2015 6:15 PM

**Comment [8]:** Headings, throughout, assist the reader in understanding the point-by-point organization. Headings are included in MLA formatting.

Amy 7/11/2015 7:24 PM

**Comment [9]:** Direct quotation as evidence with MLA citation of author's last name. This piece of evidence helps the average reader relate to possibly a wound they have received. Giving the reader a piece of relatable evidence on a topic that is very science specific broadens the audience for this text in a positive way.

Amy 6/13/2015 6:00 PM

**Comment [10]:** Writer restates the evidence in her own words and tells the reader why it is important.

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**Comment [11]:** The rest of this paragraph follows the same structure as the beginning. A direct quotation as evidence with MLA citation followed by restating the evidence and telling why it is important to the central idea.

case because it can end the need for organs by printing new ones with their own cells. Since 18 people die each and every day, instead of people dying, they could get an organ printed when the need it. This is another way bioprinting can help our society.

On the other hand, there are some flaws with bioprinting. Evidence states, "Currently it would take 10 days to print an average size liver"(Williams). With Bioprinting, it takes 10 day to print one liver for one person. These findings have important consequences for the movement of the technology of bioprinting. The slowness of the printing will make it hard to print organs for the people who need them. If this flaw doesn't get fixed, it could cause the downfall of this technology. According to Brandon Griggs, "A company has printed strips of human liver tissues in its lab, although they are still very small: four by four millimeter made in 40 minutes." Taking 40 minutes to print something less than a dime is another important factor to fixing the future of bioprinting. Without the capability to mass produce a liver or other organ, it won't satisfy the upcoming demand for organs. Therefore, if this flaw doesn't get fixed, the future of bioprinting could be very slim. "The problem with bioprinting 3D slabs of living tissues is that without blood vessels to deliver oxygen and nutrients the printed cells on the interior of the slab suffocated and die"(Hutchinson). Another flaw is some cells die in the process of bioprinting because they don't get enough air due to other cell lying on top of them which take away their oxygen. In conclusion, the suffocation of cells is an important issue to fix.

### Cost

Despite the negatives, on the bright side, bioprinting costs will go down in a few years. "With more research, the price will lower over time" (Alec). The more time and research put into this technology will make it more effective and easier to supply the demand, making bioprinting cost less. This is a good thing because it will become cheap enough for people in the future. This

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**Comment [12]:** This concluding statement directly tells the reader how this paragraph informs the central idea.

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**Comment [13]:** Transitional phrase tells the reader that they idea is shifting in this paragraph.

Amy 7/11/2015 7:26 PM

**Comment [14]:** This paragraph utilizes the alternating structure (evidence, commentary, evidence, commentary). The writer includes direct quotations as evidence with citations. Then the writer includes commentary which re-explains the evidence in her own words, tells why the evidence is important and explains how the evidence relates to the central idea or other evidence in the same paragraph.

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**Comment [15]:** The heading indicates that the writer will introduce a new topic in the following paragraphs.

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**Comment [16]:** Even with a new topic, the writer acknowledges that reader just read some negatives on the topic.

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**Comment [17]:** Alternating paragraph structure. Evidence, commentary, evidence, commentary, evidence, commentary.

helps make it easier for doctors and patients waiting for organs or other body parts. "Higher costs make it so not everyone can just print an organ or anything whenever they want" (Leckart). What Leckart is saying is if the government puts a higher price on bioprinting, it will be hard for people to print something just because they want to. This makes it so only people who really need bioprinting can access it. In my own experience with a close friend of mine who needs a kidney transplant, it can cost around \$260,000 dollars or more. Furthermore, increased bioprinting research will increase efficiency and reduce cost over years making it less expensive and more accessible for the future.

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**Comment [18]:** Writer includes anecdotal evidence to show how this topic is personal to her.

In other cases, bioprinting costs has negatively affected people. Evidence states, "...A piece of a liver tissue 3mm square and .5mm deep can sell for \$2000 or more" ("Printing a Bit of Me"). A size of a liver tissue that is less than the size of a dime for \$2000 dollar is an outrage to some people. It's hard to buy something printed on a bioprinter if you're on a budget like most of America. If you wanted to buy an average size liver (7cm by 10cm) with the current technology, it would cost around \$350,000 to print. This is a major flaw that must be fixed. "Not many Americans can afford to have a printed organ because of the high marked price" (Wakefield). What Wakefield says is completely accurate. If people can't pay to get something bioprinted, then the technology won't be used. This is another important problem. If people don't invest in bioprinting, the technology won't get enough money to move forward causing a downfall.

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**Comment [19]:** Transition shifts the reader to the opposing side.

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**Comment [20]:** Paragraph structure is alternating again. Evidence. Commentary. Evidence. Commentary. The writer maintains a consistent structure throughout the essay which allows the reader to gain the rhythm of the writing.

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**Comment [21]:** Writer relates the topic to the reader.

### Conclusion

In the future, bioprinting will become a very controversial topic. Some will argue that printing body parts and organs is morally wrong. Others think bioprinting is a wonderful thing for the future that will be able to solve the need for organs and limbs. The two sides may never

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**Comment [22]:** Writer concludes by anticipating future debates on the topic.

see eye to eye, but despite the argument, bioprinting will have a big place in the future. Where the technology currently stands today does have some problems, but it also has some great things too.

Teacher's Note:

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**Comment [23]:** Writer concludes with the statement that bioprinting is part of our future, so it is important. She also concludes that there are two sides to this central idea.

Amy 6/13/2015 5:45 PM

**Comment [24]:** Students produced a print copy of informative text and a digital copy, not included here. The digital copy utilized the skills of included pictures and hyperlinks to add to the depth of the text.

## Works Cited

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**Comment [25]:** Works cited pages follow MLA citation rules. Student utilized Easy Bib to generate these citations.

\*\*\*n.d. and n.p. mean no publishing date or no publisher found by Easy Bib when generating the entry.

**Informational Essay Rubric – Comparing & Contrasting Perspectives on an Issue**

Element	Advanced	On-Target	Novice
<b>Content</b>	<p>The writer:</p> <ul style="list-style-type: none"> <li>Artfully presents the issue background, perspectives, key questions, and key terms in the introductory paragraph(s).</li> <li>Has crafted a central idea that concerns 2-3 of the most pressing questions regarding the critical issue.</li> <li>Thoughtfully presents an abundance of supporting details highly relevant to the central idea in the form of facts, quotations, examples, and statistics.</li> <li>Always carefully analyzes supporting details to explain how they answer key questions, define a perspective, and contrast with the opposing perspective.</li> <li>Consistently compares and contrasts the two perspectives on the critical issue using signal words and phrases.</li> <li>Uses the concluding paragraph to briefly summarize the two perspectives, to explain why this issue is so critical to society, and to discuss what the future debate over this issue might involve.</li> </ul>	<p>The writer:</p> <ul style="list-style-type: none"> <li>Presents the issue background, perspectives, key questions, and key terms in the introductory paragraph(s).</li> <li>Has crafted a central idea that concerns 1-2 of the most pressing questions regarding the critical issue.</li> <li>Presents supporting details highly relevant to the central idea in the form of facts, quotations, examples, and statistics.</li> <li>Often analyzes supporting details to explain how they answer key questions, define a perspective, and contrast with the opposing perspective.</li> <li>Often compares and contrasts the two perspectives on the critical issue using signal words and phrases.</li> <li>Uses the concluding paragraph to briefly summarize the two perspectives and explain why this issue is so critical to society.</li> </ul>	<p>The writer:</p> <ul style="list-style-type: none"> <li>Presents the issue background, perspectives, key questions, and key terms, but not all these crucial elements.</li> <li>Has crafted a central idea that does not concern key questions about the critical issue or chosen perspectives.</li> <li>Presents minimal supporting details relevant to the central idea in the form of facts, quotations, examples, and statistics.</li> <li>Occasionally or never analyzes supporting details to explain how they answer key questions, define a perspective, and contrast with the opposing perspective.</li> <li>Rarely or never compares and contrasts the two perspectives on the critical issue using signal words and phrases.</li> <li>Uses the concluding paragraph only to summarize what has already been explored in the essay.</li> </ul>
<b>Organization</b>	<ul style="list-style-type: none"> <li>The chosen structure is the most effective means of conveying/supporting the controlling idea.</li> <li>Headings and sub-headings are effective titles and assist the reader in understanding how information is organized.</li> <li>The use of signal words and phrases create a logical flow between sentences and paragraphs.</li> <li>Each paragraph has a clear central idea that is presented in the topic sentence.</li> </ul>	<ul style="list-style-type: none"> <li>The chosen structure is an effective means of conveying/supporting the controlling idea.</li> <li>Headings and sub-headings are effective titles and often assist the reader in understanding how information is organized.</li> <li>The use of signal words and phrases usually create a logical flow between sentences and paragraphs.</li> <li>Most paragraphs have a clear central idea that is presented in the topic sentence.</li> </ul>	<ul style="list-style-type: none"> <li>The chosen structure is not the most effective means of conveying/supporting the controlling idea; or there is no clear structure to the essay.</li> <li>Headings and sub-headings create confusion for the reader about how information is organized.</li> <li>Signal words and phrases are rarely or never used to create a logical flow between sentences and paragraphs.</li> <li>Few paragraphs have a clear central idea that is presented in the topic sentence.</li> </ul>
<b>Style &amp; Mechanics</b>	<ul style="list-style-type: none"> <li>Writing voice is engaging and consistently appropriate for the intended audience.</li> <li>The word choice is specific to the chosen topic.</li> <li>Sentence structures are varied and complex.</li> <li>The essay contains no errors in spelling or punctuation.</li> </ul>	<ul style="list-style-type: none"> <li>Writing voice is engaging and usually appropriate for the intended audience.</li> <li>The word choice is somewhat specific to the chosen topic.</li> <li>Sentence structures are often varied and sometimes complex.</li> <li>The essay contains minimal spelling and punctuation errors.</li> </ul>	<ul style="list-style-type: none"> <li>Writing voice is not engaging or is not appropriate for the intended audience.</li> <li>The word choice is not specific to the chosen topic.</li> <li>Sentence structures are not varied or complex.</li> <li>The essay contains multiple spelling or punctuation errors.</li> </ul>

This is an example of an advanced 8<sup>th</sup> grade Informative Essay. The writer weaves a lot of credible evidence into this complex topic and clearly explains both sides of the central idea. She is able to also include how this topic is important to her while clearly analyzing each piece of evidence. Overall she uses a point-by-point organization where each main idea includes both sides of the central idea. The overall quality of evidence and analysis of evidence make this an advanced essay.